

# EUROPEAN PATENT OFFICE

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APPLICANT : NEC CORP.

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TITLE : INFRARED LIGHT EMITTING DIODE

**ABSTRACT :** PURPOSE: To obtain a GaAs infrared LED having high emitting light output suppressed in the contacting resistance between a back surface electrode and a conductive adhesive without increasing the quality of light due to the internal absorption of light components discharged externally through the internal reflection by forming a netlike structure in a back surface electrode shape, and etching the crystal surface except the electrodes in irregular or porous shape.

CONSTITUTION: The back surface electrode structure of an infrared LED is equipotential over the entire back surface if a conductive adhesive and a back surface electrode 5 are slightly contacted without decreasing the back surface reflectivity with the netlike electrode 5 having connection with the entire surface to reduce the contacting resistance. Further, the portion that GaAs crystal 1 except the electrode 5 of the back surface is exposed is perforated with an etchant, or treated to form irregular state, thereby increasing the reflection in a random direction except the vertical direction in the reflection on the surface A to increase the producing efficiency from the side. Thus, low contacting resistance and high emitting light output can be obtained as a whole.

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